

**CLAIMS**

1.- An underground sprinkler with a pop-up head, consisting of a corresponding underground casing, it has two differentiated cylindrical parts, closed by a corresponding cover fixed to the pop-up sprinkler head, which, being a part coupled to the piston, pops-up due to the effect of the water pressure pushing said piston in a portion calculated for said purpose and which is so maintained for as long as said pressure lasts, to be recovered by the action of a permanent draw-spring when the pressure stops, and having respective filtering means, piston guiding and holding means, spray arc and sprinkler head swing control means and means for assembling the sprinkler head, characterized in that it comprises: in the intersection (232) of the two bodies (230-231) of the casing (23), draining and cleaning means for preventing the jamming of the sprinkler mechanisms (4); a special cover-nut (25) adjusting at a quarter turn against said intersection (232) which is assembled and disassembled with a special tool and which serves as assembly to the piston (16), which is a specially smooth, tubular cylindrical body which, on the lower end, has fitting means for fitting a respective inlet filter (22); a closure and anti particle or impurity return filter (22); an upper end with control means for controlling respective. Reference omega-shaped elements (17-173) for the spray arc; a stop (29) for the catch of the lower body (12) of the sprinkler (4); a non-detachable stainless steel shaft (3) for assembly of the lower (12) and upper (11) body of the sprinkler (4); a jet breaker element (10); a single-piece, plastic, reinforced diffuser blade (7) without counterweights.

2.- An underground sprinkler with a pop-up head according to the previous claim, the draining and cleaning means are characterized in that they are openings (233, 234 and 235) provided on the beveled surface of the intersection (232) of both bodies (230, 231) of the casing (23), preferably

arranged at 120°.

3.- An underground sprinkler with a pop-up head according to claim 1, the special cover-nut quarter turn fit is characterized in that it is a part (25) having a cylindrical body (250) of circular plan provided with a superficial rib (251) with bevels (252, 253) on two sides for the application of a special tool for opening and closing, and provided with projecting arcuate wedge-shaped teeth (254) on the perimetral edge and with a slight stepping (256) with the bases for said quarter turn embedding in at least three points at 120°, and it is provided with a central passage (255) for the piston (16), and a circumscribed circular housing (259) on the inside for storing a joint (26) having a profile suitable for fitting to said piston (16), and another doughnut-shaped housing (258) for a joint for fitting to the corresponding body (230).

4.- An underground sprinkler with a pop-up head according to claim 1, the piston is characterized in that it comprises an externally smooth, tubular cylindrical body (16) which, on the lower end, has a widened and internally conditioned part (160) with a concave curve seating (162) for adapting the major base (222) of the purifying filter (22) and, on the upper end, it has a smaller diameter neck (165) provided with several external vertical grooves or ribs (167) for the corresponding adaptation of the omega-shaped elements (17-173) controlling the spray arc.

5.- An underground sprinkler with a pop-up head according to claim 4, the vertical grooves or ribs are characterized in that they are grooves or ribs (167) with an acute triangle profile and they are equidistantly distributed, preferably at a 60° spacing.

6.- An underground sprinkler with a pop-up head according to claims 1 and 4, the purifying filter for the water inlet is characterized in that it comprises a frusto-conical body (22) inverted according to its assembly position,

having a closed minor base (220) and another upper, open major base (222) with a perimetral flap (223) for pressure fitting in the lower conditioned part (162) of the piston (16).

5       7.- An underground sprinkler with a pop-up head according to claim 6, the minor base of the filter is characterized in that it has a concentric outer rim (221) which is housed and closed in an inner stepped (238) neck (237) of the inlet (236) or intake of the lower body (230) of the casing (23).

10      8.- An underground sprinkler with a pop-up head according to claims 1 and 5, the omega-shaped elements controlling the spray arc are characterized in that they comprise an annular body (17) projected in two divergent branches (171-172) justifying said omega shape, and which internally, on the annular body (17), have a triangular toothing (170) preferably at 114°, which rotate in a single direction or only clockwise in said grooves or ribs (167) of the upper neck (165) of the piston (16).

20      9.- An underground sprinkler with a pop-up head according to claims 1 and 8, the stop for said omega-shaped elements is characterized in that it comprises a stainless steel wire part (29) in the form of an elongated trapezium having a central opening (290) on the major base, producing two anchors (291-292) which are fixed in a corresponding housing (120) of the lower sector (12) of the sprinkler (4).

25      10.- An underground sprinkler with a pop-up head according to claim 1,

30      the stainless steel shaft for assembling the sprinkler body is characterized in that the upper end of said shaft (3), according to its assembly, comprises a milled space (30) where the head (113) of the sprinkler (4) is non-detachably fixed.

35      11.- An underground sprinkler with a pop-up head according to claim 1, the jet breaker is characterized in that it comprises a controlling screw (10) incorporating a damping spring (101) and which screws into a biased hole (115)

provided on a side extension (116) of the upper sector (11) of the sprinkler (4), directly facing the outlet (110) of the spray nozzle (9).

12.- An underground sprinkler with a pop-up head according to claim 1, the jet diffusing blade, provided in a single, plastic part, is characterized in that it comprises a wide open fork-shaped arm (7) with irregular prismatic rolls on its ends (70-71), without counterweights, and with longitudinal reinforcement ribs (73-74) on both sides of the arm (7).

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